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New claims

Sub a1

1. Recombinant non-fused VP1 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP1.

2. Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been provided with the genetic information which is necessary for expression of VP1 protein of the human parvovirus B19.

3. A method of producing VP1 protein of the human parvovirus B19 by culturing Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been provided with the genetic information which is necessary for expression of the B19 virus protein VP1.

4. A method according to claim 3, wherein the B19 virus protein formed in the cells is isolated from the cells.

Sub a2

5. Recombinant baculovirus expression vector, equipped with the genetic information which is necessary for expression of VP1 protein of the human parvovirus B19 in Spodoptera frugiperda cells.

6. Recombinant baculovirus expression vector pAcB19VP1-YM1.

7. Recombinant baculovirus, equipped with the genetic information which is necessary for expression of VP1 protein of the human parvovirus B19 in Spodoptera frugiperda cells.

8. Recombinant baculovirus AcB19VP1L.

9. The use of recombinant non-fused VP1 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP1, in an assay for detecting antibodies directed against the B19 virus protein VP1 in a sample to be tested.

10. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped

with the genetic information that is necessary for expression of VP1 protein of the human parvovirus B19, in an assay for detecting antibodies directed against the B19 virus protein VP1 in a sample to be tested.

11. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of VP1 protein of the human parvovirus B19, in an IFA or ELISA for detecting antibodies directed against the B19 virus protein VP1 in a sample to be tested.

12. A vaccine preparation for inducing an immune response which provides protection against the human parvovirus B19, comprising recombinant non-fused VP1 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for the expression of the B19 virus protein VP1, or an antigenically active portion of this recombinant B19 virus protein VP1, in combination with one or more carriers and/or adjuvants suitable for vaccination purposes.

13. The use of recombinant non-fused VP1 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus VP1, or with an antigenically active portion of this recombinant B19 virus protein VP1 for inducing an immune response, which provides protection against the human parvovirus B19.

14. Recombinant non-fused VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP2.

15. Recombinant virus-like particles consisting of VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for the expression of the B19 virus protein VP2.

16. Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of VP2 protein of the human parvovirus B19.

17. A method of producing VP2 protein of the human parvovirus B19, and/or virus-like particles consisting of VP2 protein of the human parvovirus B19, by culturing Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP2.

18. A method according to claim 17, wherein the B19 virus protein VP2 and/or virus-like particles consisting of VP2 protein of the human parvovirus B19 formed in the cells, are isolated from the cells.

19. Recombinant baculovirus expression vector, equipped with the genetic information that is necessary for expression of VP2 protein of the human parvovirus B19 in Spodoptera frugiperda cells.

20. Recombinant baculovirus expression vector pAcB19VP2-YM1.

21. Recombinant baculovirus, equipped with the genetic information that is necessary for expression of VP2 protein of the human parvovirus B19 in Spodoptera frugiperda cells.

22. Recombinant baculovirus AcB19VP2L.

23. The use of recombinant non-fused VP2 protein of the human parvovirus B19, and/or of virus-like particles consisting of VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression

vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP2, in an assay for detecting antibodies directed against the B19 virus protein VP2 in a sample to be tested.

24. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information which is necessary for expression of VP2 protein of the human parvovirus B19 in an assay for detecting antibodies directed against the B19 virus protein VP2 in a sample to be tested.

25. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of VP2 protein of the human parvovirus B19 in an IFA or ELISA for detecting antibodies directed against the B19 virus protein VP2 in a sample to be tested.

26. A vaccine preparation for inducing an immune response which provides protection against the human parvovirus B19, comprising recombinant non-fused VP2 protein of the human parvovirus B19, and/or virus-like particles consisting of VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP2, or an antigenically active portion of this recombinant B19 virus protein VP2, in combination with one or more carriers and/or adjuvants suitable for vaccination purposes.

27. The use of recombinant non-fused VP2 protein of the human parvovirus B19, and/or of virus-like particles consisting of VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the B19 virus protein VP2, or with an antigenically active portion of this recombinant B19

virus protein VP2, for inducing an immune response which provides protection against the human parvovirus B19.

28. Recombinant virus-like particles consisting of VP1 and VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of these B19 virus proteins.

29. Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of VP1 and VP2 protein of the human parvovirus B19.

30. A method of producing VP1 and VP2 protein of the human parvovirus B19, and/or virus-like particles consisting of VP1 and VP2 protein of the human parvovirus B19, by culturing Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of these B19 virus proteins.

31. A method according to claim 30, wherein the B19 virus proteins and/or virus-like particles consisting of such proteins, formed in the cells, are isolated from the cells.

32. Recombinant baculovirus expression vector, equipped with the genetic information which is necessary for expression of VP1 and VP2 protein of the human parvovirus B19 in Spodoptera frugiperda cells.

33. Recombinant baculovirus, equipped with the genetic information that is necessary for expression of VP1 and VP2 protein of the human parvovirus B19 in Spodoptera frugiperda cells.

34. The use of recombinant virus-like particles consisting of VP1 and VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for the expression of these B19

virus proteins, in an assay for detecting antibodies directed against the B19 virus in a sample to be tested.

35. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information which is necessary for expression of VP1 and VP2 protein of the human parvovirus B19, in an assay for detecting antibodies directed against the B19 virus in a sample to be tested.

36. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information which is necessary for expression of VP1 and VP2 protein of the human parvovirus B19, in an IFA or ELISA for detecting antibodies directed against the B19 virus in a sample to be tested.

37. A vaccine preparation for inducing an immune response which provides protection against the human parvovirus B19, comprising recombinant virus-like particles consisting of VP1 and VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of these B19 virus proteins, in combination with one or more carriers and/or adjuvants suitable for vaccination purposes.

38. The use of recombinant virus-like particles consisting of VP1 and VP2 protein of the human parvovirus B19, formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of these B19 virus proteins, for inducing an immune response which provides protection against the human parvovirus B19.

39. Recombinant virus-like particles, comprising VP2 protein of the human parvovirus B19, one or more epitopes of proteins of other pathogens having been incorporated into said VP2 protein, said particles having been formed in Spodoptera

frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the modified VP2 protein.

40. Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of VP2 protein of the human parvovirus B19, one or more epitopes of proteins of other pathogens having been incorporated into said VP2 proteins.

41. A method of producing virus-like particles, comprising VP2 protein of the human parvovirus B19, one or more epitopes of proteins of other pathogens having been incorporated into said VP2 protein, by culturing Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information which is necessary for expression of the modified VP2 protein.

42. A method according to claim 41, wherein the virus-like particles formed in the cells, comprising VP2 protein of the human parvovirus B19, into which VP2 protein one or more epitopes of proteins of other pathogens have been incorporated, are isolated from the cells.

43. Recombinant baculovirus expression vector, equipped with the genetic information that is necessary for expression in Spodoptera frugiperda cells of VP2 protein of the human parvovirus B19, one or more epitopes of proteins of other pathogens having been incorporated into said VP2 protein.

44. Recombinant baculovirus, equipped with the genetic information that is necessary for expression in Spodoptera frugiperda cells of VP2 protein of the human parvovirus B19, one or more epitopes of proteins of other pathogens having been incorporated into said VP2 protein.

45. The use of virus-like particles, comprising VP2 protein of the human parvovirus B19, one or more epitopes of proteins of other pathogens having been incorporated into said VP2 protein,

said particles having been formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the modified VP2 protein, in an assay for detecting antibodies directed against the incorporated epitopes in a sample to be tested.

46. The use of Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of VP2 protein of the human parvovirus B19, into which VP2 protein one or more epitopes of proteins of other pathogens have been incorporated, in an assay for detecting antibodies directed against the incorporated epitopes in a sample to be tested.

47. A vaccine preparation, comprising virus-like particles, comprising VP2 protein of the human parvovirus B19, into which VP2 protein one or more epitopes of proteins of other pathogens have been incorporated, which particles have been formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information necessary for expression of the modified VP2 protein, in combination with one or more carriers and/or adjuvants suitable for vaccination purposes, for inducing an immune response which provides protection against these other pathogens.

48. The use of virus-like particles, comprising VP2 protein of the human parvovirus B19, into which VP2 protein one or more epitopes of proteins of other pathogens have been incorporated, which particles have been formed in Spodoptera frugiperda cells which by means of a baculovirus expression vector system have been equipped with the genetic information that is necessary for expression of the modified VP2 protein, for inducing an immune response which provides protection against said pathogens.

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